Linux based 3G Specification

Multimedia Mobile Phone API

Packet Switched Communication Service

Document: CELF_MPP_PS_D_v2.2.3_20051223

WARNING : This is a working draft for review only, it is NOT a published specification of the CE Linux Forum. It is likely that further substantial changes will be made in the course of review and issue resolution. Send comments on this version to: MppApiComments@tree.celinuxforum.org

Revision History

Revision	Comment	Reviewer	Editor	Date
1.0	Initial		NEC/Panasonic	05/09/28
1.0.1	Editorial changes		John Mehaffey	05/09/28
1.0.2	Editorial changes		Christophe Guinet	05/10/24
1.0.3	Editorial changes		Christophe Guinet	05/11/03
2.2.1	Version change and new logo		Scott Preece	05/11/05
2.2.2	Updated with comments received during November face-to-face meeting in San Francisco	CELF MPPWG	Christophe Guinet	05/11/16
2.2.3	Updated with comments received during review	CELF MPPWG	Christophe Guinet	05/12/23

0. Introduction

Packet Switched Communication Service (PS Service) has the function of the packet call control and the packet data sending and receiving.
Packet Switched Communication Service includes PPP dial-up communication service and IP connection data transfer service.

0.1 References

0.1.1 Normative

RFC 2119: “Key words for use in RFCs to Indicate Requirement Levels”, S. Bradner, March 1997, URL: http://www.ietf.org/rfc/rfc2119.txt

RFC 2234: “Augmented BNF for Syntax Specifications: ABNF”. D. Crocker, Ed., P. Overell. November 1997, URL: http://www.ietf.org/rfc/rfc2234.txt

0.1.2 Informative

3GPP TS 23.060 General Packet Radio Service (GPRS); Service Description; Stage 2
URL: http://www.3gpp.org/ftp/Specs/2005-09/Rel-5/23_series/23060-5b0.zip

1. Primitives

1.1 Constants

1.1.1 CELF_MP_PS_HOST_MAX

Description: Maximum length of the character string for the ISP (Internet Service Provider) URL

1.1.2 CELF_MP_PS_APN_MAX

Description: Maximum length of the character string for the APN

1.1.3 CELF_MP_PS_TITLE_MAX

Description: Maximum length of the character string for the APN title string

1.1.4 CELF_MP_PS_DNS_RECORD_MAX

Description: Maximum length of the character string for the DNS record

1.2 Enums

1.2.1 CelfMpPsEvent

Description: APN number
Definition:
CELF_MP_PS_RECEPTION_START_IND
CELF_MP_PS_EMISSION_START_IND
CELF_MP_PS_RECEPTION_REJ_IND
CELF_MP_PS_EMISSION_REJ_IND
CELF_MP_PS_CONNECT_START_IND
CELF_MP_PS_DISCONNECT_REQ
CELF_MP_PS_DEACTIVATE_CNF
CELF_MP_PS_DEACTIVATE_IND
CELF_MP_PS_EMISSION_SETUP_RSP
CELF_MP_PS_CALLED_SETUP_RSP
CELF_MP_PS_CALLED_REJ_REQ
CELF_MP_PS_CALLED_END_IND
CELF_MP_PS_SERVICE_RING
CELF_MP_PS_SERVICE_ERROR
CELF_MP_PS_SERVICE_OK
CELF_MP_PS_CONTROL_DISCONNECT
CELF_MP_PS_DATA_SEND_IND
CELF_MP_PS_DATA_RECV_IND
CELF_MP_PS_APN_INIT_END_IND

1.2.2 CelfMpPsApnId

Description: APN number
Definition:

CELF_MP_PS_APN_DEFAULT	:	Default setting
CELF_MP_PS_APN_USERSET1	:	User-specified 1
CELF_MP_PS_APN_USERSET2	:	User-specified 2
CELF_MP_PS_APN_USERSET3	:	User-specified 3
CELF_MP_PS_APN_USERSET4	:	User-specified 4
CELF_MP_PS_APN_USERSET5	:	User-specified 5
CELF_MP_PS_APN_USERSET6	:	User-specified 6
CELF_MP_PS_APN_USERSET7	:	User-specified 7
CELF_MP_PS_APN_USERSET8	:	User-specified 8
CELF_MP_PS_APN_USERSET9	:	User-specified 9
CELF_MP_PS_APN_USERSET10	:	User-specified 10

1.2.3 CelfMpPsApnInit

Description: result of the APN initialization
Definition:

CELF_MP_PS_UIM_UPDATED	: Successful, UIM updated
CELF_MP_PS_UIM_NOT_UPDATED	: Successful, UIM not updated
CELF_MP_PS_AUTH_ERR	: Failure returned from the authentication service

1.2.4 CelfMpPsConn

Description: accept or reject an incoming PS connection
Definition:

CELF_MP_PS_COM_CONN_ACCEPT	: Accept incoming PS connection
CELF_MP_PS_COM_CONN_REJECT	: Reject incoming PS connection

1.2.5 CelfMpPsApnMode

Description: default APN settings
Definition:

CELF_MP_PS_DEFAULT_APN_MS	: APN settings stored in the mobile phone
CELF_MP_PS_DEFAULT_APN_UIM	: APN settings stored in the UIM

1.2.6 CelfMpPsExtEventSet

Description: External Equipment Event Notification class
Definition:

CELF_MP_PS_EXT_EVENT_APN_INIT_END	: Notification of APN initialization completed
CELF_MP_PS_EXT_EVENT_CLASS_ALL	: All

1.2.7 CelfMpPsPdpType

Description: PDP type
Definition:

CELF_MP_PS_PDP_TYPE_X25	: X.25 connection
CELF_MP_PS_PDP_TYPE_IP	: IP connection
CELF_MP_PS_PDP_TYPE_OSPIH	: OSPIH connection
CELF_MP_PS_PDP_TYPE_PPP	: PPP (IP based PPP)
CELF_MP_PS_PDP_TYPE_IPv6	: IPv6 connection

1.2.8 CelfMpPsEventSet

Description: Event notification class
Definition:

CELF_MP_PS_CLASS_CALL_STATE_MSG	: PS call status message notification (except for data emission / reception)
CELF_MP_PS_CLASS_SERVICE_STATE_MSG	: PS service status message notification
CELF_MP_PS_CLASS_CALL_DATA_MSG	: PS call activity (data emission / reception) message notification
CELF_MP_PS_CLASS_ALL	: All

1.2.9 CelfMpPsUPlane

Description: User Plane connection status
Definition:

CELF_MP_PS_UPLANE_ON	: U-Plane connected
CELF_MP_PS_UPLANE_OFF	: U-Plane not connected

1.2.10 CelfMpPsStatus

Description: status of the current PS communication
Definition:

CELF_MP_PS_STATUS_EMPTY	: Communication ended (idle)
CELF_MP_PS_STATUS_ACCEP_CONN	: Connected for incoming call
CELF_MP_PS_STATUS_CONNECT	: Connected for outgoing call

CELF_MP_PS_STATUS_ACTIVE : Communication active (C-Plane active)
CELF_MP_PS_STATUS_DISCONNECT : Disconnected

1.3 Data Types and Structures

1.3.1 CelfMpPsHost

Description: It contains the ISP (Internet Service Provider) URL string terminated by a NULL character '\0'. The allowable size is 1 to CELF_MP_PS_HOST_MAX.
Definition: unsigned char[CELF_MP_PS_HOST_MAX + 1]

1.3.2 CelfMpPsApn

Description: It contains the Access Point Name string terminated by a NULL character '\0'. The allowable size is 1 to CELF_MP_PS_APN_MAX.
Definition: unsigned char[CELF_MP_PS_APN_MAX + 1]

1.3.3 CelfMpPsDnsRec

Description: It contains the DNS record name string terminated by a NULL character '\0'. The allowable size is 1 to CELF_MP_PS_DNS_RECORD_MAX.
Definition: unsigned char [CELF_MP_PS_DNS_RECORD_MAX + 1]

1.3.4 CelfMpPsTitle

Description: It contains the title string for the APN terminated by a NULL character '\0'. The allowable size is 1 to CELF_MP_PS_TITLE_MAX.
Definition: unsigned char[CELF_MP_PS_TITLE_MAX + 1]

1.3.5 CelfMpPsApnHostData

Description: APN/host data structure
Definition:
APN/host data structure

```
typedef struct  {
    CelfMpPsApnId       apn_id ;
    CelfMpPsApn         Apn ;
    CelfMpPsHost        Host ;
    CelfMpPsTitle       Title ;
} CelfMpPsApnHostData;
```

1.4 Events type

1.4.1 Packet switched call state notification event

In this sub-section, the associated data structure is CELF_MP_EVENT with the following values:

category = PacketNotify;
subtype = PacketNotify_Call_State;

The value of the field 'info' is the event from enum CelfMpPsEvent.

1.4.1.1 CELF_MP_PS_RECEPTION_START_IND

Description: It notifies the start of packet switched reception

1.4.1.2 CELF_MP_PS_EMISSION_START_IND

Description: It notifies the start of packet switched emission

1.4.1.3 CELF_MP_PS_RECEPTION_REJ_IND

Description: It notifies the rejection of packet switched reception

1.4.1.4 CELF_MP_PS_EMISSION_REJ_IND

Description: It notifies the rejection of packet switched emission

1.4.1.5 CELF_MP_PS_CONNECT_START_IND

Description: It notifies the start of packet switched connection

1.4.1.6 CELF_MP_PS_DISCONNECT_REQ

Description: Notification of packet disconnecting (on mobile station) indication started

1.4.1.7 CELF_MP_PS_DEACTIVATE_CNF

Description: Notification of packet disconnecting indication ended

1.4.1.8 CELF_MP_PS_DEACTIVATE_IND

Description: Notification of packet disconnecting (on network) completed

1.4.1.9 CELF_MP_PS_EMISSION_SETUP_RSP

Description: Notification of transmission record registered

1.4.1.10 CELF_MP_PS_CALLED_SETUP_RSP

Description: Notification of termination record registered

1.4.1.11 CELF_MP_PS_CALLED_REJ_REQ

Description: Notification of missed termination record registered

1.4.1.12 CELF_MP_PS_CALLED_END_IND

Description: Notification of packet termination indication ended

1.4.2 Packet switched service status notification event

In this sub-section, the associated data structure is CELF_MP_EVENT with the following parameters:

category = PacketNotify;
subtype = PacketNotify_Service_State;

The value of the field 'info' is the event from enum CelfMpPsEvent.

1.4.2.1 CELF_MP_PS_SERVICE_RING

Description: packet switched service establishment

1.4.2.2 CELF_MP_PS_SERVICE_ERROR

Description: packet switched service ERROR

1.4.2.3 CELF_MP_PS_SERVICE_OK

Description: packet switched service OK (successful completion of primitive)

1.4.2.4 CELF_MP_PS_CONTROL_DISCONNECT

Description: packet switched service DISCONNECT

1.4.3 Packet switched call activity notification event

In this sub-section, the associated data structure is CELF_MP_EVENT with the following parameters:

category = PacketNotify;
subtype = PacketNotify_Call_Data;

The value of the field ‘info’ is the event from enum CelfMpPsEvent.

1.4.3.1 CELF_MP_PS_DATA_SEND_IND

Description: Data emission notification

1.4.3.2 CELF_MP_PS_DATA_RECV_IND

Description: Data reception notification

1.4.4 External equipment status notification event

In this sub-section, the associated data structure is CELF_MP_EVENT with the following parameters:

category = PacketNotify;
subtype = PacketNotify_Apn_Init_End;

The value of the field ‘info’ is the event from enum CelfMpPsEvent.

1.4.4.1 CELF_MP_PS_APN_INIT_END_IND

Description: APN initialization complete notification.

2. Start packet switched communication notification

2.1 Symbol: celf_mp_ps_notification_start

2.1.1 Syntax

```
CelfMpStatus     celf_mp_ps_notification_start (
    CelfMpAppId          app_id,
    CelfMpPsEventSet     event_set,
    CelfMpCallback       callback_func );
```

2.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

Name: event_set
Type: CelfMpPsEventSet
I/O: I
Description: Set of notification events. Events belonging to one of the CelfMpPsEventSet classes **may** be registered to have a callback function called when the event occurs for the application identified by app_id. Classes of events are selected by setting the corresponding bit in event_set.

The following notification event classes **shall** be supported:
CELF_MP_PS_CLASS_CALL_STATE_MSG
CELF_MP_PS_CLASS_SERVICE_STATE_MSG
CELF_MP_PS_CLASS_CALL_DATA_MSG

A callback may be registered for all classes of events using the special event class CELF_MP_PS_CLASS_ALL, however to reduce overhead it is recommended that only the needed event classes should be registered.

Name: callback_func
Type: CelfMpCallback
I/O: I
Description: The callback function that shall be called when an event occurs from one of the classes registered in event_set.

2.1.3 Return Value

Type: CelfMpStatus
Description: `celf_mp_ps_notification_start` () **shall** return one of the following values :
CELF_MP_STATUS_OK: Successful completion
CELF_MP_STATUS_APP_ID_ERR: Invalid Application ID
CELF_MP_STATUS_EVENT_SET_ERR: The set of event is invalid
CELF_MP_STATUS_ERR: Other unsuccessful completion

2.1.4 Include File

/usr/include/celf/mp_ps.h

2.1.5 Functional Description

This function is used to start notification for events related to packet switched communication. Events from a registered class **shall** cause the registered callback function to be called when the event occurs for the application identified by app_id. If a class of events does not have a registered callback function, no callback shall occur for those events.

Different callback functions **may** be registered for different classes of events. Only the most recently registered callback for an event class **shall** be called when an event of that class occurs, and no notification shall be given when a callback for an event class is superseded. Callbacks **may** be canceled using the `celf_mp_ps_notification_stop`() function.

The following notification event classes **shall** be supported:

CELF_MP_PS_CLASS_CALL_STATE_MSG
CELF_MP_PS_CLASS_SERVICE_STATE_MSG
CELF_MP_PS_CLASS_CALL_DATA_MSG

3. Stop packet switched communication notification

3.1 Symbol: celf_mp_ps_notification_stop

3.1.1 Syntax

```
CelfMpStatus      celf_mp_ps_notification_stop (
        CelfMpAppId             app_id,
        CelfMpPsEventSet        event_set );
```

3.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

Name: event_set
Type: CelfMpPsEventSet
I/O: I
Description: Set of notification events (see 2. Start packet switched communication notification).

3.1.3 Return Value

Type: CelfMpStatus
Description: `celf_mp_ps_notification_stop` () **shall** return one of the following values :
CELF_MP_STATUS_OK: Successful completion
CELF_MP_STATUS_APP_ID_ERR: Invalid Application ID
CELF_MP_STATUS_EVENT_SET_ERR: The set of event is invalid
CELF_MP_STATUS_ERR: Other unsuccessful completion

3.1.4 Include File

/usr/include/celf/mp_ps.h

3.1.5 Functional Description

This function stops notification callbacks for the selected event classes related to packet switched communication.
Events from the classes identified by event_set **shall** have their callbacks cancelled for the application identified by app_id. If no callback is registered for a selected class, no error **shall** occur.
To restart callbacks for these event classes, the application **must** call `celf_mp_ps_notification_start`() again.

For more information about packet communication classes, (see 2. Start packet switched communication notification).

4. Get packet switched communication status

4.1 Symbol: celf_mp_ps_com_status_get

4.1.1 Syntax

```
CelfMpStatus     celf_mp_ps_com_status_get (
        CelfMpAppId              app_id,
        CelfMpPsPdpType          pdp_type,
        CelfMpPsStatus *         status);
```

4.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

Name: pdp_type
Type: CelfMpPsPdpType
I/O: I
Description: This parameter **shall** have one of the following values :
CELF_MP_PS_PDP_TYPE_X25
CELF_MP_PS_PDP_TYPE_IP
CELF_MP_PS_PDP_TYPE_OSPIH
CELF_MP_PS_PDP_TYPE_PPP
CELF_MP_PS_PDP_TYPE_IPv6

Name: status
Type: CelfMpPsStatus
I/O: O
Description: `celf_mp_ps_com_status_get` () **shall** return one of the following values :
CELF_MP_PS_EMPTY: Communication ended (idle)
CELF_MP_PS_ACCEP_CONN: Connected for incoming call
CELF_MP_PS_CONNECT: Connected for outgoing call
CELF_MP_PS_ACTIVE: Communication active (C-Plane active)
CELF_MP_PS_DISCONNECT: Disconnected

4.1.3 Return Value

Type: CelfMpStatus
Description: `celf_mp_ps_com_status_get` () **shall** return one of the following values :
CELF_MP_STATUS_OK: Successful completion
CELF_MP_STATUS_APP_ID_ERR: Invalid Application ID
CELF_MP_STATUS_PS_PDP_TYPE_ERR: unsupported PDP type
CELF_MP_STATUS_ERR: Other unsuccessful completion

4.1.4 Include File

/usr/include/celf/mp_ps.h

4.1.5 Functional Description

This function **shall** return the current packet communication status of the specified PDP type for the application identified by app_id. It is not necessary to call `celf_mp_ps_notification_start` () to use `celf_mp_ps_com_status_get`().

pdp_type **must** be an individual enumerator (pdp_type does not allow the OR operator)

5. Request packet switched communication connection

5.1 Symbol: celf_mp_ps_connect

5.1.1 Syntax

```
CelfMpStatus    celf_mp_ps_connect (
        CelfMpAppId             app_id,
        CelfMpPsPdpType         pdp_type);
```

5.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

Name: pdp_type
Type: CelfMpPsPdpType
I/O: I
Description: This parameter **shall** have one of the following values :

CELF_MP_PS_PDP_TYPE_X25
CELF_MP_PS_PDP_TYPE_IP
CELF_MP_PS_PDP_TYPE_OSPIH
CELF_MP_PS_PDP_TYPE_PPP
CELF_MP_PS_PDP_TYPE_IPv6

5.1.3 Return Value

Type: CelfMpStatus
Description: `celf_mp_ps_connect` () **shall** return one of the following values :

CELF_MP_STATUS_OK: Successful completion
CELF_MP_STATUS_PS_PDP_TYPE_ERR: unsupported PDP type
CELF_MP_STATUS_PS_DENIED: Request rejected by network due to no subscription to packet communication service
CELF_MP_STATUS_ERR: Other error

5.1.4 Include File

/usr/include/celf/mp_ps.h

5.1.5 Functional Description

This function **shall** open a packet communication channel of the specified type for the application specified by app_id.

When the processing of this function is started by MPP, it **shall** cause the CELF_MP_PS_EMISSION_START_IND event to occur. Applications **should** wait for this message before starting another MPP packet switched service related function call.

If the channel is successfully opened, it **shall** cause the CELF_MP_PS_SERVICE_OK event to occur.

If the channel is not successfully opened, it **shall** cause the CELF_MP_PS_ CONTROL_ERR event to occur.

6. Response to a network request for packet switched connection

6.1 Symbol: celf_mp_ps_connect_rsp

6.1.1 Syntax

```
CelfMpStatus      celf_mp_ps_connect_rsp (
        CelfMpAppId             app_id,
        CelfMpPsConn            type,
        CelfMpCallRef           call_ref );
```

6.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

Name: type
Type: CelfMpPsConn
I/O: I
Description: CELF_MP_PS_COM_CONN_ACCEPT: Accept incoming
CELF_MP_PS_COM_CONN_REJECT: Reject incoming

Name: call_ref
Type: CelfMpCallRef
I/O: I
Description: Call Reference for incoming call

6.1.3 Return Value

Type: CelfMpStatus
Description: `celf_mp_ps_connect_rsp ()` **shall** return one of the following values :
CELF_MP_STATUS_OK: Successful completion
CELF_MP_STATUS_APP_ID_ERR: Invalid Application ID
CELF_MP_STATUS_CALL_REF_ERR: Invalid Call reference
CELF_MP_STATUS_ERR: Other unsuccessful completion

6.1.4 Include File

/usr/include/celf/mp_ps.h

6.1.5 Functional Description

This function accepts or rejects the packet communication depending on the Parameter “type”.

The start of processing by MPP **shall** be notified by the following event:
CELF_MP_PS_RECEPTION_START_IND

The completion of this function **shall** be notified by the following event:
CELF_MP_PS_SERVICE_OK

Unsuccessful processing of this function **shall** be notified by the following event:
CELF_MP_PS_SERVICE_ERROR

7. Request the deactivation of packet switched communication

7.1 Symbol: celf_mp_ps_call_disconnect

7.1.1 Syntax

```
CelfMpStatus    celf_mp_ps_disconnect (
        CelfMpAppId             app_id,
        CelfMpCallRef           call_ref );
```

7.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

Name: call_ref
Type: CelfMpCallRef
I/O: I
Description: Call Reference of the packet switched call to be disconnected

7.1.3 Return Value

Type: CelfMpStatus
Description: `celf_mp_ps_disconnect` () **shall** return one of the following values :
CELF_MP_STATUS_OK: Successful completion
CELF_MP_STATUS_APP_ID_ERR: Invalid Application ID
CELF_MP_STATUS_CALL_REF_ERR: Invalid Call reference
CELF_MP_STATUS_ERR: Other unsuccessful completion

7.1.4 Include File

/usr/include/celf/mp_ps.h

7.1.5 Functional Description

This function disconnects a packet switched communication.

The start of processing by MPP **shall** be notified by the following event:
CELF_MP_PS_DISCONNECT_REQ

The completion of this function **shall** be notified by the following event:
CELF_MP_PS_SERVICE_OK

Unsuccessful processing of this function **shall** be notified by the following event:
CELF_MP_PS_SERVICE_ERROR

8. Specify APN settings

8.1 Symbol: celf_mp_ps_apn_set

8.1.1 Syntax

```
CelfMpStatus     celf_mp_ps_apn_set (
        CelfMpAppId             app_id,
        CelfMpPsApnId           apn_id,
        CelfMpPsApn *           Apn,
        CelfMpPsHost *          Host,
        CelfMpPsTitle *         Title );
```

8.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

Name: apn_id
Type: CelfMpPsApnId
I/O: I
Description: User APN to set:

CELF_MP_PS_APN_USERSET1:	User-specified 1
CELF_MP_PS_APN_USERSET2:	User-specified 2
CELF_MP_PS_APN_USERSET3:	User-specified 3
CELF_MP_PS_APN_USERSET4:	User-specified 4
CELF_MP_PS_APN_USERSET5:	User-specified 5
CELF_MP_PS_APN_USERSET6:	User-specified 6
CELF_MP_PS_APN_USERSET7:	User-specified 7
CELF_MP_PS_APN_USERSET8:	User-specified 8
CELF_MP_PS_APN_USERSET9:	User-specified 9
CELF_MP_PS_APN_USERSET10:	User-specified 10

Name: Apn
Type: CelfMpPsApn *
I/O: I
Description: APN data.

Name: Host
Type: CelfMpPsHost *
I/O: I
Description: Host data.

Name: Title
Type: CelfMpPsTitle *
I/O: I
Description: Title data.

8.1.3 Return Value

Type: CelfMpStatus
Description: `celf_mp_ps_apn_set` () **shall** return one of the following values :

CELF_MP_STATUS_OK:	Successful completion
CELF_MP_STATUS_APP_ID_ERR:	Invalid Application ID
CELF_MP_STATUS_ERR:	Other unsuccessful completion

8.1.4 Include File

/usr/include/celf/mp_ps.h

8.1.5 Functional Description

This function allows the modification of the APN, Host and Title data of one of the 10 user-specified APNs.

9. Get APN settings

9.1 Symbol: celf_mp_ps_apn_get

9.1.1 Syntax

```
CelfMpStatus      celf_mp_ps_apn_get (
        CelfMpAppId                 app_id,
        CelfMpPsApnHostData *       apn_data );
```

9.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

Name: apn_data
Type: CelfMpPsApnHostData
I/O: O
Description: APN/host data structure

9.1.3 Return Value

Type: CelfMpStatus
Description: `celf_mp_ps_apn_get` () **shall** return one of the following values :
CELF_MP_STATUS_OK: Successful completion
CELF_MP_STATUS_APP_ID_ERR: Invalid Application ID
CELF_MP_STATUS_ERR: Other unsuccessful completion

9.1.4 Include File

/usr/include/celf/mp_ps.h

9.1.5 Functional Description

This function returns the current APN data, host data and title data.

10.Select APN for packet switched communication

10.1 Symbol: celf_mp_ps_apn_select

10.1.1 Syntax

```
CelfMpStatus    celf_mp_ps_apn_select (
        CelfMpAppId         app_id,
        CelfMpPsApnId       apn_id );
```

10.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

Name: apn_id
Type: CelfMpPsApnId
I/O: I
Description: Destination number to be used

CELF_MP_PS_APN_DEFAULT :	Default setting
CELF_MP_PS_APN_USERSET1:	User-specified 1
CELF_MP_PS_APN_USERSET2:	User-specified 2
CELF_MP_PS_APN_USERSET3:	User-specified 3
CELF_MP_PS_APN_USERSET4:	User-specified 4
CELF_MP_PS_APN_USERSET5:	User-specified 5
CELF_MP_PS_APN_USERSET6:	User-specified 6
CELF_MP_PS_APN_USERSET7:	User-specified 7
CELF_MP_PS_APN_USERSET8:	User-specified 8
CELF_MP_PS_APN_USERSET9:	User-specified 9
CELF_MP_PS_APN_USERSET10:	User-specified 10

10.1.3 Return Value

Type: CelfMpStatus
Description: `celf_mp_ps_apn_select` () **shall** return one of the following values :

CELF_MP_STATUS_OK:	Successful completion
CELF_MP_STATUS_APP_ID_ERR:	Invalid Application ID
CELF_MP_STATUS_ERR:	Other unsuccessful completion

10.1.4 Include File

/usr/include/celf/mp_ps.h

10.1.5 Functional Description

This function sets the APN to be used for packet switched communication.

11.Get APN used for packet switched communication

11.1 Symbol: celf_mp_ps_apn_id_get

11.1.1 Syntax

```
CelfMpPsApnId       celf_mp_ps_apn_id_get (
    CelfMpAppId     app_id );
```

11.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

11.1.3 Return Value

Type: CelfMpPsApnId
Description: `celf_mp_ps_apn_id_get` () **shall** return one of the following values :

CELF_MP_PS_APN_DEFAULT : Default setting
CELF_MP_PS_APN_USERSET1: User-specified 1
CELF_MP_PS_APN_USERSET2: User-specified 2
CELF_MP_PS_APN_USERSET3: User-specified 3
CELF_MP_PS_APN_USERSET4: User-specified 4
CELF_MP_PS_APN_USERSET5: User-specified 5
CELF_MP_PS_APN_USERSET6: User-specified 6
CELF_MP_PS_APN_USERSET7: User-specified 7
CELF_MP_PS_APN_USERSET8: User-specified 8
CELF_MP_PS_APN_USERSET9: User-specified 9
CELF_MP_PS_APN_USERSET10: User-specified 10

11.1.4 Include File

/usr/include/celf/mp_ps.h

11.1.5 Functional Description

This function returns the APN being used for packet switched communication.

12.Force deactivation of a packet communication

12.1 Symbol: celf_mp_ps_force_disconnect

12.1.1 Syntax

```
CelfMpStatus    celf_mp_ps_force_disconnect (
        CelfMpAppId         app_id,
        CelfMpCallRef       call_ref );
```

12.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

Name: call_ref
Type: CelfMpCallRef
I/O: I
Description: Packet switched call reference to be disconnected forcibly.

12.1.3 Return Value

Type: CelfMpStatus
Description: `celf_mp_ps_force_disconnect` () **shall** return one of the following values :
CELF_MP_STATUS_OK: Successful completion
CELF_MP_STATUS_APP_ID_ERR: Invalid Application ID
CELF_MP_STATUS_ERR: Other unsuccessful completion

12.1.4 Include File

/usr/include/celf/mp_ps.h

12.1.5 Functional Description

This function disconnects a packet communication forcibly.

The completion of this function **shall** be notified by the following event:
CELF_MP_PS_DEACTIVATE_IND

Unsuccessful processing of this function **shall** be notified by the following event:
CELF_MP_PS_SERVICE_ERROR

13.Get User Plane connection status

13.1 Symbol: celf_mp_ps_uplane_status_get

13.1.1 Syntax

```
CelfMpPsUPlane      celf_mp_ps_uplane_status_get (
        CelfMpAppId     app_id );
```

13.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

13.1.3 Return Value

Type: CelfMpPsUPlane
Description: `celf_mp_ps_uplane_status_get` () **shall** return one of the following values :
CELF_MP_PS_UPLANE_ON : U-Plane connected
CELF_MP_PS_UPLANE_OFF: U-Plane not connected

13.1.4 Include File

/usr/include/celf/mp_ps.h

13.1.5 Functional Description

This function gets the current U-Plane connection status.

14.Get DNS record name

14.1 Symbol: celf_mp_ps_dns_record_get

14.1.1 Syntax

```
CelfMpStatus    celf_mp_ps_dns_record_get (
        CelfMpAppId         app_id,
        CelfMpPsDnsRec * DNS_Record ) ;
```

14.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

Name: DNS_Record
Type: CelfMpPsDnsRec *
I/O: O
Description: DNS record name.

14.1.3 Return Value

Type: CelfMpStatus
Description: `celf_mp_ps_dns_record_get` () **shall** return one of the following values :
CELF_MP_STATUS_OK: Successful completion
CELF_MP_STATUS_APP_ID_ERR: Invalid Application ID
CELF_MP_STATUS_ERR: Other unsuccessful completion

14.1.4 Include File

/usr/include/celf/mp_ps.h

14.1.5 Functional Description

This function retrieves the name of the DNS for the destination currently being used.

15.Get default APN mode

15.1 Symbol: celf_mp_ps_apn_mode_get

15.1.1 Syntax

```
CelfMpPsApnMode     celf_mp_ps_apn_mode_get(
        CelfMpAppId     app_id);
```

15.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

15.1.3 Return Value

Type: CelfMpPsApnMode
Description: `celf_mp_ps_apn_mode_get` () shall return one of the following values :
CELF_MP_PS_DEFAULT_APN_MS: Settings in the mobile phone
CELF_MP_PS_DEFAULT_APN_UIM: Settings in the UIM

15.1.4 Include File

/usr/include/celf/mp_ps.h

15.1.5 Functional Description

This function gets the type of default APN settings. The default APN could be set to UIM or to Mobile phone.

16.Force deactivation of all packet switched communications

16.1 Symbol: celf_mp_ps_service_shutdown

16.1.1 Syntax

```
CelfMpStatus    celf_mp_ps_service_shutdown (
        CelfMpAppId        app_id ) ;
```

16.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

16.1.3 Return Value

Type: CelfMpStatus
Description: `celf_mp_ps_service_shutdown` () shall return one of the following values :

CELF_MP_STATUS_OK: Successful completion
CELF_MP_STATUS_APP_ID_ERR: Invalid Application ID
CELF_MP_STATUS_ERR: Other unsuccessful completion

16.1.4 Include File

/usr/include/celf/mp_ps.h

16.1.5 Functional Description

This function disconnects all packet switched communications currently being used by the application.

17.Request APN initialization

17.1 Symbol: celf_mp_ps_apn_initialize

17.1.1 Syntax

```
CelfMpPsApnInit  celf_mp_ps_apn_initialize (
        CelfMpAppId          app_id ) ;
```

17.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

17.1.3 Return Value

Type: CelfMpPsApnInit
Description: `celf_mp_ps_apn_initialize` () **shall** return one of the following values :

CELF_MP_PS_UIM_UPDATED: Successful, UIM updated
CELF_MP_PS_UIM_NOT_UPDATED: Successful, UIM not updated
CELF_MP_PS_AUTH_ERR : Failure returned from the authentication service

17.1.4 Include File

/usr/include/celf/mp_ps.h

17.1.5 Functional Description

This function initializes APN, this initialized APN is called default APN.
When the power is turned on, this function starts APN initialization according to a request from an authentication application which initializes APN according to the process below:
(case1) When the APN information in the UIM is not the same as the APN information requested by the authentication application,
the APN information requested by the authentication application is stored in the UIM or in the mobile phone.
(case2) When the APN information in UIM is same as the APN information requested by authentication application,
the information in the UIM is not changed.
(case3) In case of an error such as failure of reading the UIM information,
the APN information requested by the authentication application is set in the mobile phone.
The APN initialization completion is notified as an event
CELF_MP_PS_EXT_EVENT_APN_INIT_END
Additional information to it is used to post the used destination number.

18.Start monitoring external equipment for packet switched communication

18.1 Symbol: celf_mp_ps_ext_device_notification_start

18.1.1 Syntax

```
CelfMpStatus    celf_mp_ps_ext_device_notification_start (
        CelfMpAppId         app_id,
        CelfMpPsExtEventSet     mask,
        CelfMpCallback      callback_func) ;
```

18.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

Name: mask
Type: CelfMpPsExtEventSet
I/O: I
Description: Set of external notification events.
Enabled with the bit turned ON
CELF_MP_PS_EXT_EVENT_APN_INIT_END : Notification of APN initialization completed
CELF_MP_PS_EXT_EVENT_CLASS_ALL : All

Name: callback_func
Type: CelfMpCallback
I/O: I
Description: Callback function used to notify the event.

18.1.3 Return Value

Type: CelfMpStatus
Description: `celf_mp_ps_ext_device_notification_start` () shall return one of the following values :
CELF_MP_STATUS_OK: Successful completion
CELF_MP_STATUS_APP_ID_ERR: Invalid Application ID
CELF_MP_STATUS_EVENT_SET_ERR: The set of event is invalid
CELF_MP_STATUS_ERR: Other unsuccessful completion

18.1.4 Include File

/usr/include/celf/mp_ps.h

18.1.5 Functional Description

This function start sending event notification regarding the external equipment i.e. external TE for packet communication.
Applications may be notified of the following events:

- APN initialization completed: Notifies the APN initialization completed and the destination number to be used.

19.Stop monitoring external equipment for packet switched communication

19.1 Symbol: celf_mp_ps_ ext_device_notification_stop

19.1.1 Syntax

```
CelfMpStatus      celf_mp_ps_ext_device_notification_stop (
        CelfMpAppId         app_id,
        CelfMpPsExtEventSet         mask ) ;
```

19.1.2 Argument

Name: app_id
Type: CelfMpAppId
I/O: I
Description: Application identifier.

Name: mask
Type: CelfMpPsExtEventSet
I/O: I
Description: Set of external notification events.
Stops the notification when the bit is set
CELF_MP_PS_EXT_EVENT_APN_INIT_END : Notification of APN initialization completed
CELF_MP_PS_EXT_EVENT_CLASS_ALL : All

19.1.3 Return Value

Type: CelfMpStatus
Description: `celf_mp_ps_ext_device_notification_stop` () **shall** return one of the following values :
CELF_MP_STATUS_OK: Successful completion
CELF_MP_STATUS_APP_ID_ERR: Invalid Application ID
CELF_MP_STATUS_EVENT_SET_ERR: The set of event is invalid
CELF_MP_STATUS_ERR: Other unsuccessful completion

19.1.4 Include File

/usr/include/celf/mp_ps.h

19.1.5 Functional Description

This function stops sending event notification for the events specified in Symbol: celf_mp_ps_ext_device_notification_start.

